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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/565,570

07/21/2006

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30004-004US1

2103

69713 7590 10/06/2009
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EXAMINER

BORSETTI, GREG

ART UNIT

PAPER NUMBER

2626

NOTIFICATION DATE

DELIVERY MODE

10/06/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

INFO@ORTPATENT.COM

Office Action Summary	Application No. 10/565,570	Applicant(s) MORRIS, ROBERT W.	
	Examiner GREG A. BORSETTI	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1-19 are pending.
2. Claims 1, 17, and 18 have been amended.
3. The previous rejections under 35 USC 112 1st paragraph have been withdrawn in view of the amendments received 7/22/2009.
4. The previous rejections under 35 USC 101 have been withdrawn in view of the amendments received 7/22/2009.

Response to Arguments

5. Applicant argues "Even though there may be "human assistance" in the generation of Chou's network of key-phrase and filler-phrase grammars, there is no suggestion in Chou that such "human assistance" represents an "indication that a spoken event in a first set of audio signals is of interest to a user." (Remarks, Page 8, ¶ 3) The arguments are directed to claim language that has been amended since the last action and therefore the limitations are not recited in the **rejected** claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).
6. Applicant further argues "Foote does not disclose or make obvious "locating ... putative instances of the spoken event of interest in the second audio signal" using a representation of the spoken event of interest that is formed by "receiving an indication

Art Unit: 2626

that a spoken event in a first set of audio signals is of interest to a user, identifying two or more instances of the spoken event of interest in the first set of audio signals, and representing each identified instance of the spoken event of interest in the representation of the spoken event of interest using at least one sequence of subword units," as required in amended claim 1." (Remarks, Page 10, ¶ 2) The arguments are directed to claim language that has been amended since the last action and therefore the limitations are not recited in the **rejected** claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Objections

7. Claim 13 is objected to because of the following informalities: There should be a space between "claim" and "1". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 17-19 recite the limitation "unknown speech". There is insufficient antecedent basis for this limitation in the claim. The claim amendments to claim 1 appear to remove this term but it was overlooked in claims 17-19. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-4, 8-9, 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cardillo et al. (NPL Document Phonetic Searching vs. LVCSR: How to Find What You Really Want in Audio Archives”) in view of Wolf et al. (US PG PUB #20030204492)

As per claim 1, Cardillo teaches:

accepting, by a word spotting engine of the word spotting system, data representing the unknown speech in a second audio signal; and (Fig. 1, preprocessing phase and generation of the search track. Page 11, column 2, ...*A phonetic grammar likewise depends upon the natural language in use (particularly the set of phonemes used to represent basic sounds and meanings of the input speech). This grammar is used to identify likely end points of words in the input speech...*)

Cardillo fails to fully teach, but Wolf teaches:

forming, by a query recognizer of a word spotting system, a representation of a spoken event of interest, wherein the forming includes receiving an indication that a

Art Unit: 2626

spoken event in a first set of audio signals is of interest to a user, identifying two or more instances of the spoken event of interest in the first set of audio signals, and representing each identified instance of the spoken event of interest in the representation of the spoken event of interest using at least one sequence of subword units; (Cardillo, Page 15, column 2, teaches multiple word queries which are two or more instances of a event of interest. They are performed in a phonetic search therefore they comprise at least one sequence of phonemes each. Again, Cardillo fails to specifically teach a spoken event of interest. Wolf, ¶ 0054, *...a phoneme lattice, as described above, can also be used for devices with limited resources...In the case where the recognizer is part of the input device, e.g., a cell phone, the lattices can be forwarded to the search engine 190...*)

locating, by the word spotting engine of the word spotting system, putative instances of the spoken event of interest in the second audio signal using the representation of the spoken event of interest, wherein the locating includes identifying time locations of the second audio signal at which the spoken event of interest is likely to have occurred based on a comparison of the data representing the unknown speech with the representation of the spoken event of interest. (Cardillo teaches in Fig. 1, a searching phase which locates putative instances of a query where ,Page 12, Temporal_Offset teaches a time location. Cardillo fails to specifically teach a spoken event of interest (spoken query). Wolf, abstract, *...A spoken query is represented as a lattice...)*

Art Unit: 2626

It would have been obvious to someone of ordinary skill in the art to combine Wolf with Cardillo to avoid losing information and adding ambiguity by application of a speech recognition process and performing traditional textual document retrieval. (Wolf, ¶ 0006)

As per claim 2, claim 1 is incorporated and Cardillo teaches:

wherein forming the representation of the spoken event of interest comprises applying a computer- implemented speech recognition algorithm to data representing the first set of audio signals. (Page 11, Preprocessing, Acoustic Model, and Phonetic Grammar, ...*preprocessing engine scans the input speech and produces the corresponding phonetic search track...*)

As per claim 3, claim 1 is incorporated and Cardillo teaches:

wherein the subword units include linguistic units. (Page 11, Preprocessing, Acoustic Model, and Phonetic Grammar, ...*preprocessing engine scans the input speech and produces the corresponding phonetic search track...*)

As per claim 4, claim 2 is incorporated and Cardillo fails to fully teach but Wolf teaches:

wherein locating the putative instances includes applying a computer- implemented word spotting algorithm configured using the representation of the spoken event of interest. (Cardillo teaches phonetic keyword spotting but fails to teach that the event of interest (query) is spoken. Wolf, ¶ 0054, ...*a phoneme lattice, as*

Art Unit: 2626

described above, can also be used for devices with limited resources...In the case where the recognizer is part of the input device, e.g., a cell phone, the lattices can be forwarded to the search engine 190...)

It would have been obvious to someone of ordinary skill in the art to combine Wolf with Cardillo to avoid losing information and adding ambiguity by application of a speech recognition process and performing traditional textual document retrieval. (Wolf, ¶ 0006)

As per claim 8, claim 1 is incorporated and Cardillo fails to fully teach but Wolf teaches:

wherein the representation of the spoken event of interest defines a network of subword units. (Wolf, ¶ 0054, *...a phoneme lattice, as described above, can also be used for devices with limited resources...In the case where the recognizer is part of the input device, e.g., a cell phone, the lattices can be forwarded to the search engine 190...*)

It would have been obvious to someone of ordinary skill in the art to combine Wolf with Cardillo to avoid losing information and adding ambiguity by application of a speech recognition process and performing traditional textual document retrieval. (Wolf, ¶ 0006)

As per claim 9, claim 8 is incorporated and Cardillo fails to fully teach but Wolf teaches:

wherein the network of subword units is formed by multiple sequences of subword units that correspond to different paths through the network. (Wolf, ¶

Art Unit: 2626

0054, ...*a phoneme lattice, as described above, can also be used for devices with limited resources...In the case where the recognizer is part of the input device, e.g., a cell phone, the lattices can be forwarded to the search engine 190...Figs 3a and 3b show the lattices.*)

It would have been obvious to someone of ordinary skill in the art to combine Wolf with Cardillo to avoid losing information and adding ambiguity by application of a speech recognition process and performing traditional textual document retrieval. (Wolf, ¶ 0006)

As per claim 12, claim 1 is incorporated and Cardillo fails to fully teach but Wolf teaches:

accepting first audio data representing utterances of the event of interest spoken by a user, and processing the first audio data to form a processed query.

(Wolf, ¶ 0054, ...*a phoneme lattice, as described above, can also be used for devices with limited resources...In the case where the recognizer is part of the input device, e.g., a cell phone, the lattices can be forwarded to the search engine 190...Figs 3a and 3b show the lattices.*)

It would have been obvious to someone of ordinary skill in the art to combine Wolf with Cardillo to avoid losing information and adding ambiguity by application of a speech recognition process and performing traditional textual document retrieval. (Wolf, ¶ 0006)

Art Unit: 2626

As per claim 13, claim 1 is incorporated and Cardillo teaches:

accepting a selection by the user of portions of stored data from the first set of audio signals, and processing the portions of the stored data to form a processed query. (Cardillo, Page 14, teaches the use of the AudioLogger™ product for selecting media segments. Although the capabilities of AudioLogger™ are not discussed in Cardillo, NPL Document “Inventory of Metadata for Multimedia” teaches in section 3.4 that ...*The Virage Tools automatically index your video content. The tools use speech recognition technology to extract information from the audio signal...* Therefore, the selection is an inherent feature of AudioLogger™ of which Cardillo incorporates by reference.)

As per claim 14, claim 13 is incorporated and Cardillo teaches:

prior to accepting the selection by the user, processing the first set of audio signals according to a first computer-implemented speech recognition algorithm to produce the stored data. (Cardillo, Page 14, teaches the use of the AudioLogger™ product for selecting media segments. Although the capabilities of AudioLogger™ are not discussed in Cardillo, NPL Document “Inventory of Metadata for Multimedia” teaches in section 3.4 that ...*The Virage Tools automatically index your video content. The tools use speech recognition technology to extract information from the audio signal. A publishing application makes it possible to publish the searchable information...* Therefore, prior to the selection of the searchable information, a speech recognition algorithm is performed to produced the stored searchable data. The selection is an inherent feature of AudioLogger™ of which Cardillo incorporates by

Art Unit: 2626

reference.)

As per claim 15, claim 14 is incorporated and Cardillo teaches:

wherein the first speech recognition algorithm produces data related to presence of the subword units at different times in the first set of audio signals. (Cardillo teaches in Fig. 1, a searching phase which locates putative instances of a query where ,Page 12, Temporal_Offset teaches a time location. Thus the collection of subword units generated by the first speech recognition algorithm is indicative of subword units at different times in the first set of audio signals.)

As per claim 16, claim 14 is incorporated and Cardillo teaches:

applying a second speech recognition algorithm to the processed query.
(Cardillo, Page 11, column 2, *...It is even conceivable that dynamic channel and language detection could be employed to switch acoustic models during preprocessing...* Furthermore, Page 12, column 1, *...A phonetic dictionary is probed for each word within the query term to accommodate unusual words (whose pronunciations must be handled specially for the given natural language...* It would have been obvious to someone of ordinary skill in the art at the time of the invention that if the audio is indexed in an alternative language and a person wants to search in a different language (North American English vs. Castilian Spanish), a second speech recognition algorithm with a phonetic dictionary specific to the language could have been applied to the processed query.)

Art Unit: 2626

Claims 17 and 18 are the computer readable medium and hardware representations of the method as claimed in claim 1. Claims 17 and 18 are rejected under the same principles as claim 1 for having similar limitations. Cardillo, Page 20, table 3 teaches computer implemented means for the method. The computer teaches a system, and the system cannot operate without being programmed, so a computer readable medium is inherent.

As per claim 19, claim 18 is incorporated and Cardillo fails to specifically teach, but Wolf teaches:

wherein the word spotter is further configured to identify time locations of the second audio signal at which the spoken event of interest is likely to have occurred based on a comparison of the data representing the unknown speech with the representation of the spoken event of interest. (Cardillo teaches in Fig. 1, a searching phase which locates putative instances of a query where ,Page 12, Temporal_Offset teaches a time location. Cardillo fails to specifically teach a spoken event of interest (spoken query). Wolf, abstract, ...*A spoken query is represented as a lattice...*)

It would have been obvious to someone of ordinary skill in the art to combine Wolf with Cardillo to avoid losing information and adding ambiguity by application of a speech recognition process and performing traditional textual document retrieval. (Wolf, ¶ 0006)

Art Unit: 2626

10. Claims 5-7, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cardillo et al. (NPL Document Phonetic Searching vs. LVCSR: How to Find What You Really Want in Audio Archives”) in view of Wolf et al. (US PG PUB #20030204492) in view of Ferrieux et al. (NPL Document “PHONEME-LEVEL INDEXING FOR FAST AND VOCABULARY-INDEPENDENT VOICE/VOICE RETRIEVAL”)

As per claim 5, claim 4 is incorporated and Cardillo and Wolf fail to teach, but Ferrieux teaches:

selecting processing parameter values of the speech recognition algorithm for application to the data representing the first set of audio signals according to characteristics of the word spotting algorithm. (Section 2.2, ...*To compute the optimal parameters of those models,...*)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Ferrieux with Cardillo and Wolf to optimize the parameters of the system based on the desired outcome (maximize likelihood/minimize error retrieval rate). (Ferrieux, section 2.2)

As per claim 6, claim 5 is incorporated and Cardillo and Wolf fail to teach, but Ferrieux teaches:

wherein the selecting of the processing parameter values of the speech recognition algorithm includes optimizing said parameters according to an accuracy of the word spotting algorithm. (Section 2.2, ...*To compute the optimal*

Art Unit: 2626

parameters of those models,...maximize likelihood...)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Ferrieux with Cardillo and Wolf to optimize the parameters of the system based on the desired outcome (maximize likelihood/minimize error retrieval rate). (Ferrieux, section2.2)

As per claim 7, claim 5 is incorporated and Cardillo and Wolf fail to teach, but Ferrieux teaches:

wherein the selecting of the processing parameter values of the speech recognition algorithm includes selecting values for parameters including one or more of an insertion factor, a recognition search beam width, a recognition grammar factor, and a number of recognition hypotheses. (Ferrieux, section 2.1 defines the models which include insertion costs, section 2.2 optimizes them.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Ferrieux with Cardillo and Wolf to optimize the parameters of the system based on the desired outcome (maximize likelihood/minimize error retrieval rate). (Ferrieux, section2.2)

As per claim 10, claim 1 is incorporated and Cardillo and Wolf fail to teach, but Ferrieux suggests:

wherein forming the representation of the spoken event of interest includes determining an n-best list of recognition results. (Section 3, Synchronized

Art Unit: 2626

Lattices, ...*for each phoneme of the 1-best sequence, the posterior probabilities of the N-1 other phonemes on the same interval are also given...* Ferrieux further provides ...*the single best sequence of phonemes often contains errors, and although systematic errors are handled by the confusion matrix, it is felt that knowledge of the second-best match would most often yield greater precision...* Therefore, given that the single best sequence of phonemes often contains errors, it would have been obvious to someone of ordinary skill in the art that multiple sequences through the lattice would have been beneficial to boost precision due to a higher number of sequences.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Ferrieux with Cardillo and Wolf to optimize the parameters of the system based on the desired outcome (maximize likelihood/minimize error retrieval rate). (Ferrieux, section2.2)

As per claim 11, claim 10 is incorporated and Cardillo and Wolf fail to teach, but Ferrieux suggests:

wherein each sequence of subword units in the representation corresponds to a different one in the n-best list of recognition results. (Section 3, Synchronized Lattices, ...*for each phoneme of the 1-best sequence, the posterior probabilities of the N-1 other phonemes on the same interval are also given...* Ferrieux further provides ...*the single best sequence of phonemes often contains errors, and although systematic errors are handled by the confusion matrix, it is felt that knowledge of the second-best match would most often yield greater precision...* Therefore, given that the single best

Art Unit: 2626

sequence of phonemes often contains errors, it would have been obvious to someone of ordinary skill in the art that multiple sequences through the lattice would have been beneficial to boost precision due to a higher number of sequences. The phoneme sequences are the matches (which defines the first and second options) in Ferrieux, therefore it would have further been obvious that the phoneme sequences through the lattice would have been each of the different options in the n-best criterion evaluations.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Ferrieux with Cardillo and Wolf to optimize the parameters of the system based on the desired outcome (maximize likelihood/minimize error retrieval rate). (Ferrieux, section2.2)

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to PTO-892, Notice of References Cited for a listing of analogous art.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2626

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREG A. BORSETTI whose telephone number is (571)270-3885. The examiner can normally be reached on Monday - Thursday (8am - 5pm Eastern Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHEMOND DORVIL can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/565,570

Page 17

Art Unit: 2626

/Greg A. Borsetti/
Examiner, Art Unit 2626

/Talivaldis Ivars Smits/
Primary Examiner, Art Unit 2626

9/30/2009